



US006589057B1

(12) **United States Patent**  
**Keenan et al.**

(10) **Patent No.:** US 6,589,057 B1  
(45) **Date of Patent:** Jul. 8, 2003

(54) **INCISION TRAINER FOR OPHTHALMOLOGICAL SURGERY**(75) Inventors: **Joseph F. Keenan**, Cohasset, MA (US); **Richard V. Kennedy**, Hyannis, MA (US); **Dana Cote**, Saugus, MA (US)(73) Assignee: **Becton, Dickinson & Company**, Franklin Lakes, NJ (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/671,564**(22) Filed: **Sep. 27, 2000**(51) Int. Cl.<sup>7</sup> ..... **G09B 23/28**(52) U.S. Cl. ..... **434/271**(58) Field of Search ..... 434/262, 267,  
434/270, 272, 273, 271(56) **References Cited**

## U.S. PATENT DOCUMENTS

- |             |   |         |                |       |         |
|-------------|---|---------|----------------|-------|---------|
| 1,042,815 A | * | 10/1912 | Myers          | ..... | 434/271 |
| 1,582,199 A | * | 4/1926  | Walters        | ..... | 434/271 |
| 1,630,944 A | * | 5/1927  | Ingersoll      | ..... | 434/271 |
| 3,177,593 A | * | 4/1965  | Loeb           | ..... | 434/271 |
| 4,136,466 A | * | 1/1979  | Wrue           | ..... | 434/271 |
| 4,674,503 A |   | 6/1987  | Peyman et al.  | ..... | 128/305 |
| 4,737,132 A | * | 4/1988  | Shunsaku       | ..... | 446/348 |
| 4,761,150 A | * | 8/1988  | Lautenberger   | ..... | 446/345 |
| 4,762,495 A |   | 8/1988  | Maloney et al. | ..... | 434/271 |
| 4,762,496 A |   | 8/1988  | Maloney et al. | ..... | 434/271 |
| 4,865,551 A |   | 9/1989  | Maloney et al. | ..... | 434/271 |
| 4,865,552 A |   | 9/1989  | Maloney et al. | ..... | 434/271 |

5,080,111 A	1/1992	Pallin	.....	128/898	
5,137,459 A	8/1992	Zirm	.....	434/271	
5,261,822 A	11/1993	Hall et al.	.....	434/271	
5,336,236 A	8/1994	Nevyas-Wallace	.....	606/166	
5,423,840 A	6/1995	Casebeer et al.	.....	606/166	
5,425,644 A	6/1995	Szinicz	.....	434/268	
5,571,124 A	11/1996	Zelman	.....	606/166	
5,766,016 A	*	6/1998	Sinclair	.....	434/262
5,785,531 A	7/1998	Leung	.....	434/262	
5,868,580 A	*	2/1999	Amrein	.....	434/271
5,893,719 A	*	4/1999	Radow	.....	434/271

\* cited by examiner

Primary Examiner—Derris H. Banks

Assistant Examiner—Kurt Fernstrom

(74) Attorney, Agent, or Firm—Alan W. Fiedler

(57) **ABSTRACT**

The present invention provides systems and methods for simulating certain regions of the anatomy involved in ophthalmological surgery. In particular, the present invention provides a practice cornea simulating dimensional, geometric and mechanical properties of a human cornea. In one embodiment, the practice cornea is seated in tight apposition to a simulated iris that is characterized by dimensional and geometric properties similar to a human iris. The practice cornea seated upon the simulated iris may be inserted into an aperture in a simulated sclera, forming therewith a smooth surface similar to that found in the anterior part of the human eye. The simulated sclera may be provided with dimensional and geometric characteristics resembling the human sclera. The combination of these elements provides an anatomic replica of the anterior part of the human eye upon which surgeons may realistically practice surgical techniques, in particular corneal incisions.

24 Claims, 7 Drawing Sheets

